In the Claims:

This listing of claims will replace all prior versions and listings of claims in this application.

1-21 (Canceled).

22 (Currently amended). A miniaturized gas chromatograph comprising a miniaturized separation column and a miniaturized device for the storage and/or enrichment of molecules or atoms, or both, ~~characterized by a chamber with a filling material, the filling material comprising carbon nanotubes and/or carbon nanofibers, and wherein the filling material is covered by at least one layer of amorphous carbon, thus forming the chamber, and wherein the chamber comprises~~ wherein said miniaturized device for the storage and/or enrichment comprises a silicon wafer wherein an inlet opening and an outlet opening are incorporated into said silicon wafer, further comprising a PECVD layer of a filling material deposited onto said silicon wafer, further comprising a PECVD layer consisting of amorphous carbon covering said filling material layer, said inlet opening and said outlet opening, thus forming a channel-like chamber comprising the filling material, wherein said inlet opening and said outlet opening are both connected via a connection to the chamber thus forming an inlet and an outlet for the delivery and extraction of a sample of molecules or atoms, or both, wherein the outlet of the chamber is directly connected to the separation column of the gas chromatograph.

23 (Previously presented). The miniaturized gas chromatograph according to claim 22 characterized in that the filling material is porous.

24 (Previously presented). The miniaturized gas chromatograph according to claim 22 characterized in that the chamber is formed on a carrier.

25 (Previously presented). The miniaturized gas chromatograph according to claim 24 characterized in that the chamber is located on the surface of a carrier or that it is embedded in the surface of the carrier.

26 (Previously presented). The miniaturized gas chromatograph according to claim 24 characterized in that the carrier is a silicon wafer.

27 (Previously presented). The miniaturized gas chromatograph according to claim 22 characterized in that a heating unit is provided.

28 (Previously presented). The miniaturized gas chromatograph according to claim 27 characterized in that the heating unit is located opposite to the side of the surface of the carrier with the chamber.

29 (Previously presented). The miniaturized gas chromatograph according to claim 27, characterized in that the heating unit comprises a resistive heating element produced via thick-film or thin-film technology.

30 (Previously presented). The miniaturized gas chromatograph according to claim 22 characterized in that a cooling unit is provided.

31 (Previously presented). The miniaturized gas chromatograph according to claim 30 characterized in that the cooling unit comprises a Peltier-element.

32 (Previously presented). The miniaturized gas chromatograph according to claim 30 characterized in that the cooling unit is located opposite to the side of the surface of the carrier with the chamber.

33 (Previously presented). The miniaturized gas chromatograph according to claim 32 characterized in that the cooling unit is located in a recess of the carrier.

34 (Previously presented). The miniaturized gas chromatograph according to claim 22, characterized in that the chamber is formed in a shape of a channel.

35 (Previously presented). The miniaturized gas chromatograph according to claim 22, characterized in that the outlet of the chamber is connected to an inlet of the separation column.

36 (Currently amended). A process for the production of a miniaturized gas chromatograph comprising a miniaturized separation column and a miniaturized device for the storage and/or enrichment of molecules or atoms, or both, especially for a miniaturized gas chromatograph, characterized by the following steps:

a) Manufacturing the miniaturized separation column using microsystem technology,

b) Providing a silicon substrate and forming an inlet opening and an outlet opening in said substrate,

~~b)~~c) ~~Deposition of~~ Depositing at least one layer of filling material on said silicon substrate using Plasma Enhanced Chemical Vapor Deposition (PECVD), ~~which comprises~~ said layer comprising nanoscale carbon nanotubes, carbon nanofibers and/or fullerenes on to a carrier, ~~and~~

~~c)~~d) Covering of said at least one PECVD layer of filling material with at least one layer of amorphous carbon using PECVD,

whereby the layer of filling material and the layer of amorphous carbon are deposited in such a way onto the carrier that a channel is formed between the carrier and the layer of amorphous carbon, the channel containing the filling material, ~~and~~ whereby ~~two~~ said inlet and outlet openings ~~are structured into the carrier which~~ can be used to connect the channel to the outside world, and

~~d)~~e) Connecting one of the openings to the inlet of the separation column.

37 (Canceled).

38 (Previously presented). The process according to claim 36 characterized in that the area of the carrier, where the layer of filling material is deposited, is predefined by a catalyst layer of structured transition metal, previously deposited on the carrier.

39 (Previously presented). The process according to claim 38 characterized in that iron, nickel or cobalt is used as the transition metal.

40-43 (Canceled).

44 (New). The miniaturized gas chromatograph according to claim 22, wherein the filling material comprises carbon nanotubes and/or carbon nanofibers.